

the crew of the schooner "Juniata Julia" arrived at that place on the above date and reported that during the night of April 4th the schooner was capsized by a water sport during her voyage from Tuxpan, Mexico, to Galveston, Texas.

Fort Macon, North Carolina: a water spout moving north-eastward was observed near Bogue inlet on the 15th.

New River Inlet, North Carolina: at 9.20 a. m. of the 15th a small water-spout was observed about one mile southeast of this station. The base of the column was about ten feet in diameter, and its height about twenty feet, the color being a dark grey. It moved in a southeasterly direction, and was accompanied by a roaring noise.

ZODIACAL LIGHT.

Archer, Florida, 17th, 22d.

Key West, Florida, 26th.

Pensacola, Florida, 12th, 16th.

Portland, Maine, 23d.

Harvard College Observatory, Massachusetts, 12th, 13th, 14th, 22d, 23d, 26th, 27th.

Escauaba, Michigan, 2d, 4th, 5th, 6th, 23d.

Nashville, Tennessee, 15th, 16th, 25th, 26th.

Variety Mills, Virginia, 15th, 16th, 17th.

DROUGHT.

Corpus Christi, Nueces county, Texas, 24th: stockmen report that large numbers of cattle are dying on account of scarcity of water and poor pasturage caused by drought.

SAND STORMS.

Arizona.—Yuma, 10th, 24th, 26th.

New Mexico.—Fort Union, 1st.

NOTES AND EXTRACTS.

REPORT OF THE MISSOURI WEATHER SERVICE, APRIL, 1884.

The temperature during April has been 53°.0 at Central Station, which is three degrees below the normal. The mean April temperature has fallen to or below 53°.0 twelve times during the last forty-seven years, and has fallen as low as 44°.2, in the year 1857. The lowest observed means in the state during the past April were 48°.6 at Lexington, and 49°.3 at Oregon. The highest means were 56°.4, at Springfield, and 56°.2, at Cairo.

The temperature of the air fell to 32° for the last time on the 8th, at Saint Louis, that being the coldest temperature of the month. Over a region lying south and east of a line running through Saint Louis, Chamois, and thence southward near Iron Mountain, the temperature did not fall below 32°. The highest minimum was 37° at Cairo. The lowest minimum of 21° at Centerville, is probably an error, or may be due local causes. Other minima are 24° at Oregon; 27° at Lexington; and 28° at Keokuk and Hannibal. The maximum temperatures reported were, 87° at Glasgow, and 84° at Centerville, Chamois, Boonville, and Miami.

The rainfall at the Central Station was 3.92 inches, which is about normal. In the state the rainfall has been greatest, or over four inches, in the southwestern part. The maximum of 6.50 inches occurred at Greenfield. The least fall, slightly exceeding one inch, occurred in the northeastern part of the state.

A small tornado occurred at Lamar, but the date is not given. A small whirlwind occurred about six miles southwest of Greenfield on the 18th, causing one death.

Miami reports a peculiar electrical phenomena in the east at 23 hours on the 15th. It had a comet-like appearance, the tail or streamer turning first towards the north then towards the south.

On the 9th, a heavy snowfall occurred in central Missouri, the flakes measuring three to four inches in diameter at Miami and at Glasgow, they were two inches wide and three inches long.

The spring has, on the whole, been a very favorable one although a little late.

Correction.—In second line from top, in March report, for four read fourteen.

FRANCIS E. NIPHER,
Director.

WEATHER REPORT FOR APRIL, 1884.

Prepared by Prof. F. H. Snow, of University of Kansas, from observations taken at Lawrence.

The chief meteorological features of this month were the low temperature (the lowest April mean since 1875), the excessive cloudiness, and the abundant rainfall, which surpassed that of any previous April upon our seventeen years' record. The prolonged snow storm of the 21st was a very exceptional occurrence at so late a date. There were no injurious frosts.

Mean temperature.—50°.42, which is 3°.80 below the April average. The highest temperature was 76°.5 on the 17th, this being the lowest April maximum in our record; the lowest temperature was 28°.5 on the 8th, giving a

monthly range of 48°. Mean temperature at 7 a. m., 45°.77; at 2 p. m., 58°.37; at 9 p. m., 48°.77.

Rainfall.—5.62 inches, which is 2.63 inches above the April average of the sixteen preceding years. Rain fell on thirteen days. There were four thunder showers. A very moist snow fell all day on the 21st, melting nearly as fast as it fell. It is estimated that the entire depth of the snow was at least six inches. The entire rainfall for the four months of 1884 now completed has been 10.76 inches, which is 3.06 inches above the average for the same months in the preceding sixteen years.

Mean cloudiness.—55.76 per cent. of the sky, the month being 7.41 per cent. cloudier than usual. Number of clear days (less than one-third cloudy), 6; half clear (from one to two thirds cloudy), 15; cloudy (more than two-thirds), 9. There were two entirely clear days and five entirely cloudy. Mean cloudiness at 7 a. m., 57.60 per cent.; at 2 p. m., 70 per cent.; at 9 p. m., 39.67 per cent.

Wind.—NW., twenty-three times; se., twenty times; sw., nineteen times; ne., fourteen times; n., seven times; s., three times; e., three times; w., once. The total run of the wind was 13,954 miles, which is 118 miles below the April average. This gives a mean daily velocity of 465.13 miles and a mean hourly velocity of 19.38 miles. The highest velocity was 60 miles an hour, on the 9th, from 5 to 6 p. m.

Barometer.—Mean for the month, 29.001 inches; at 7 a. m., 29.002 inches; at 2 p. m., 28.979 inches; at 9 p. m., 29.021 inches; maximum, 29.321 inches on the 3d; minimum, 28.495 inches on the 26th; monthly range, 0.826 inch.

Relative humidity.—Mean for the month, 65.9 per cent.; at 7 a. m., 75.5; at 2 p. m., 49.6; at 9 p. m., 72.7; greatest, 100, on the 13th, 19th, and 21st; least, 19, on the 5th. There was one fog.

The following table furnishes a comparison with the seventeen previous Aprils:

April.	Mean temperature.	Maximum temperature.	Minimum temperature.	Rain (inches).	Snow (inches).	Rainy days.	Thunder-storms.	Mean cloudiness.	Humidity.	Number of fogs.	Miles of wind.	Mean barometer.	Maximum barometer.	Minimum barometer.
1868.....	49.05	83.0	25.0	2.95	0.00	10	3	52.00	.....	1	.....	.....	.....	.....
1869.....	51.44	87.0	18.0	2.43	1.00	10	2	51.00	72.1	0	.....	29.000	29.407	28.388
1870.....	56.84	91.0	19.0	1.08	0.00	8	1	49.33	54.7	1	.....	29.081	29.359	28.700
1871.....	57.99	92.0	30.5	2.38	0.00	8	3	47.11	53.5	0	.....	28.891	29.331	28.299
1872.....	50.42	85.0	30.0	4.74	0.00	12	7	55.12	59.5	1	.....	28.999	29.443	28.401
1873.....	48.85	88.0	20.0	4.42	2.00	9	2	55.89	63.4	0	.....	18.371	28.957	29.349
1874.....	48.77	81.0	22.5	2.86	0.00	8	2	51.11	57.7	0	.....	14.784	29.100	29.422
1875.....	49.79	82.0	23.0	2.54	0.00	10	2	48.22	57.6	0	.....	14.144	29.075	29.395
1876.....	55.00	87.5	30.0	3.38	0.00	7	5	44.78	59.6	0	.....	14.442	29.035	29.418
1877.....	53.00	81.0	25.0	3.13	0.00	11	4	53.00	64.9	1	.....	11.976	28.995	29.537
1878.....	58.60	82.0	30.0	5.48	0.00	7	5	38.22	66.0	1	.....	11.482	28.851	29.242
1879.....	56.40	84.0	20.0	4.18	0.00	10	0	49.67	61.0	0	.....	11.231	29.062	29.467
1880.....	56.92	93.0	31.0	1.75	0.00	6	4	34.50	53.4	0	.....	16.709	29.029	29.550
1881.....	52.47	84.0	13.0	1.27	0.00	9	4	51.78	67.6	0	.....	14.495	29.084	29.501
1882.....	56.83	88.0	35.0	3.20	0.00	9	5	51.77	61.7	0	.....	14.220	29.032	29.449
1883.....	57.18	89.5	35.0	3.12	0.00	8	2	40.11	53.3	2	.....	12.936	28.957	29.473
1884.....	50.42	76.5	28.5	5.62	0.00	13	4	55.76	65.9	1	.....	13.954	29.002	29.321
Mean.....	54.00	85.6	26.4	3.14	0.50	9	4	48.79	60.5	0.5	14,063	29.010	29.416	28.498

The following extract has been taken from the report of the "Alabama Weather Service," for the month of April, 1884, under the direction of Professor P. H. Mell, Jr., Director:

AGRICULTURAL AND MECHANICAL COLLEGE,

Auburn, Alabama, May 1, 1884.

The month of April opened with two weeks of cool, dry weather, the atmosphere being generally hazy, and the wind northwest. The average rainfall reported from eleven stations up to the 14th, was only .38 of an inch, other stations reporting none. On the 9th and 10th, during the prevalence of this drought, heavy frosts in the northern part of the state were reported as doing much damage to the fruit crop. Slight frosts occurred at the same time in middle and southern Alabama. Crops and gardens throughout the state were considerably retarded during this period.

From 14th to the 21st, the precipitation was greater. Heavy rainfalls, attended by violent winds and grand displays of electricity, were quite general, and are described as disastrous in several places.

From the 22d to the 25th, a cold wave passed over the state. The 24th was the coldest day during this period, the average temperature being 47°.6. The lowest temperature for this day is reported from Selma, 31°. Slight frosts were noticed on the 24th to the 30th, some light showers were reported but the month was generally dry, atmosphere hazy, temperature warmer, winds variable. Encouraging reports come from all sections that crops are growing rapidly, and farmers seem cheerful.

SUMMARY.

Mean temperature, 63°.

Highest temperature, 94° at Calera, on the 29th.

Lowest temperature, 28° at Calera, on the 10th.

Range of temperature, 66°.

Mean depth of rainfall, 4.16 inches.

Mean daily rainfall, .14 inch.

Greatest depth of monthly rainfall, 7.37 inches at Scottsborough.

Least depth of monthly rainfall, 1.77 inches, at Selma.

Prevailing direction of wind, northwest.

Greatest force of wind, reported from Tusculumbia and Greensborough on the 14th, 70 miles per hour; Marion and Birmingham on the 14th, 40 miles per hour; Chattanooga, on the 2d, 40 miles per hour.

Average number of cloudy days, 12.

Average number of clear days, 6.

Average number of fair days, 12.

Average number of days on which rain fell, 8.

Days of general rainfall, 12th, 13th, 19th, 21st.

Greatest daily average rainfall, for the state, 1.10 on 15th.

Heaviest rainfall, Birmingham, 15th, 3.50 inches.

Hottest days, 9th, 10th, 24th, 25th.

Coldest days, 9th, 10th, 24th, 25th.

Hail storms occurred on the 1st, 14th and 19th.

Thunder storms occurred on the 1st, 13th, 14th, 15th, 18th, 19th, 20th, 26th. Those of the 14th, 15th, 18th and 19th were general over the state.

Frosts occurred on the 2d, 9th, 10th, 24th, 25th.

While the precipitation was lighter than usual for this month, there was a large proportion of cloudy days; some stations report the sun not visible for a week, and some report only one clear day.

The following meteorological summary for April, 1884, and table showing the dates of the first and latest frosts and snowfalls at New Orleans for each winter from 1870-71, to 1883-84, are taken from the first report (for April, 1884) of the "Louisiana Weather Service."

Winters of—	Frosts.		Snows.	
	First.	Last.	First.	Last.
1870-71.....	Dec. 20	Jan. 15	*	*
1871-72.....	Dec. 1	Feb. 3	*	*
1872-73.....	Nov. 30	Jan. 19	*	*
1873-74.....	Nov. 20	Jan. 30	*	*
1874-75.....	Nov. 26	Feb. 10	*	*
1875-76.....	Dec. 18	Feb. 16	*	*
1876-77.....	Nov. 21	Feb. 18	*	*
1877-78.....	Nov. 11	Jan. 25	Jan. 1	Jan. 1
1878-79.....	Nov. 1	Feb. 11	Dec. 26	Dec. 26
1879-80.....	Nov. 20	Feb. 27	Jan. 5	Jan. 5
1880-81.....	Nov. 16	Feb. 27	Dec. 29	Jan. 24
1881-82.....	Nov. 24	Feb. 5	Dec. 25	Dec. 25
1882-83.....	Nov. 30	Jan. 23	Jan. 9	Jan. 9
1883-84.....	Dec. 16	Feb. 15	None.	None.

* None recorded.

STATE SUMMARY.

Mean temperature, 65°.8.

Highest temperature, 87°, at Minden on the 19th, and at Cheneyville on the 28th.

Lowest temperature, 36°, at Coushatta on the 9th.

Monthly range of temperature, 51°.

Greatest daily range of temperature, 45°, at Minden on the 23d.

Least daily range of temperature, 1°, at Coushatta on the 21st.

Average rainfall, 4.68 inches.

The following extract has been taken from the report of the "Tennessee Weather Service" for April, 1884:

The meteorological conditions of the month were without any feature of especial interest, except the generally low temperature during the early part, and the excessive precipitation about the 14th.

The mean temperature was 55°.57, 6°.57 above that of March and 6° below that of April, 1883. The minimum was 25°, 15° above that of March and 5° above that of April, 1883. The temperature ranged highest during the last days of the month, and lowest about the 9-11th.

The average precipitation for the month was 4.95 inches, 2.95 inches below that of March and 1.95 inches below that of April, 1883. The days of greatest precipitation were the 12th, 14th, 18th, 21st, 22d, 27th, and 28th. The greatest daily precipitation occurred on the 14th, when it averaged 2.38 inches for the entire state, and at some stations it amounted to nearly 4.00 inches.

STATE SUMMARY OF REPORTS.

Mean temperature, 55°.57.

Highest temperature, 86°, on 29th at Tennessee University.

Lowest temperature, 25°, on the 9th at Beach Grove and Hurricane Switch.

Range of temperature, 61°.

Greatest daily range of temperature, 42°, on the 27th at Tennessee University.

Least daily range of temperature, 0°, on the 2d at Hohenwald, and 1° on the 10th at Centerville, on the 12th at Smithville, Flat Creek and Howell, on the 14th at Greeneville and Darnall, on the 22d at Hurricane Switch, on the 23d at Hurricane Switch, Fostoria, and Kingston Springs, and on the 28th at Alexandria.

Mean depth of rainfall, 4.95 inches.

Mean daily rainfall, .165 inch.

Greatest depth of rainfall, 8.77, at Trenton.

Least depth of rainfall, 2.15, at Sunbright.

Average number of clear days, 7.7.

Average number of fair days, 7.3.

Average number of cloudy days, 15.

Average number of days on which rain fell, 8.4.

Prevailing direction of the wind, south.

The following meteorological summary and remarks are taken from the May report of the Department of Agriculture for Illinois:

The mean temperature of April, 1884, is below the average for a term of years, and the rainfall was less than usual for the same months in the two preceding years.

The mean temperature of the past seven Aprils in the several divisions of the state is as follows:

Division.	1878.	1879.	1880.	1881.	1882.	1883.	1884.
Northern.....	53.0	46.0	49.0	40.8	48.6	48.1	46.9
Central.....	58.0	51.0	52.0	45.2	53.4	53.2	51.0
Southern.....	60.0	55.0	57.0	53.3	58.6	57.4	53.3
Average.....	57.0	50.7	52.7	46.4	53.3	52.9	50.4

It will be seen from the above table that the mean temperature of April 1884, is lower than for any corresponding month since 1877, with the exception of April, 1881.

The average monthly rainfall, including melted snow, for the past seven Aprils is as follows:

Division.	1878.	1879.	1880.	1881.	1882.	1883.	1884.
Northern.....	3.72	2.13	4.29	1.81	4.55	3.86	2.77
Central.....	3.03	1.99	4.29	1.89	4.14	4.66	2.33
Southern.....	5.20	2.41	3.22	4.11	2.84	4.54	3.57
Average.....	4.18	2.18	3.93	2.60	3.84	4.15	2.89

The mean precipitation for the state has not been less than that of April, 1881; for the corresponding during the past seven years but twice, viz.: 1879 and 1881.

Mr. W. R. Thompson, director of the "Nebraska Weather Service," furnishes the following report:

NEBRASKA WEATHER SERVICE, BULLETIN FOR APRIL, 1884.

The general character of the month was wet and cool.

Rainfall.—The average by sections was as follows: southeast, 3.44 inches; northeast, 3.06 inches; southwest, 2.92 inches; northwest, 2.55 inches; average for state, 2.99 inches.

Temperature.—The mean temperature of the air was 45°.75; the average of all noon observations was 51°.41.

Mean relative humidity.—North Platte, 69.1 per cent.; De Soto, 68.3 per cent.; Agricultural college, 74.8 per cent.; Crete, 77.0.

Wind.—Number of miles traveled: North Platte, 9,067; Crete, 11,473; Agricultural College, 10,740.

The following meteorological summary is taken from the April report of the Commissioner of Agriculture for Georgia:

Districts.	Temperature			Average precipitation.	
	Mean of maximum.	Mean of minimum.	Monthly mean.	Inches.	Average number of rainy days.
Northern.....	85	32	57.0	6.49	8
Middle.....	85	35	60.2	5.20	8
Southwestern.....	86	44	63.0	4.07	8
Eastern.....	85	34	60.0	3.60	8
Southeastern.....	88	50	66.7	2.85	6
Means for the state.....	86	39	61.4	4.44	7

Mr. W. H. Ragan, director of the "Indiana Weather Service," furnishes the following meteorological summary for April, 1884:

Districts.	Mean temperature.	Precipitation.
		Inches.
Averages for northern counties.....	46.5	1.54
Averages for central counties.....	48.6	2.72
Averages for southern counties.....	51.5	31.7
Averages for state.....	48.8	2.71

